ONTOLOGY-ORIENTED E-GOVERNMENT SERVICE INTEGRATION UTILISING THE SEMANTIC WEB

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Certificate of Authorship/Originality

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text. I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Student

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Table of Content

Table of Figures

List of Tables

Table of Listings

Abstract

E-government service integration process has recently become an important research topic in e-government domain since many countries have developed various levels of e-government services. Non-interoperability between government agencies in service delivery implementation and platform posing the technical challenge, and the lack of the formulated modelling framework is the main methodological obstacle on the way of achieving dynamic delivery of integrated e-government services.

This research is a study of the problems associated with the integration and delivery of integrated e-government services, and proposes a novel solution to tackle them. We start with investigating the fundamentals of e-government as a field of research to build a sensible argument for the questions investigated by this research, which lead to the exposure of the methodological as well as technological problems with the mechanics of e-government in the areas of service integration and delivery.

The outcomes of this study in Chapters 3, 4, 5, 6, and 7 respectively 1) suggests the most practically relevant and technically possible evolutionary pathway to e-government transformation, 2) proposes a modified software engineering process to achieve such transformation, 3) develops an innovative framework for modelling the service integration, 4) proposes an ontology as its knowledgebase, and 5) develops an innovative and intelligent software to support the practice of service integration and delivery. These outcomes collectively result in the introduction of a novel, complete and coherent solution for the abovementioned problems.

This research is a cross disciplinary study of software integration engineering frameworks, e-government service delivery platform and semantic web technology, all working to devise the most efficient and robust framework of using semantic web capabilities to enable the delivery of integrated e-government services in an intelligent platform.